Proceedings of the Iowa Academy of Science

Volume 45 | Annual Issue Article 83

1938

The Cause of the Red-Green Color Change in Euglena Rubra

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HEREDITARY FUSION OF THE PROXIMAL PHALANGEAL JOINTS

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A case of symphalangy has been traced through six generations. In the course of six generations, seventeen out of nineteen individuals are affected with this trait.

In all individuals, with the exception of one young woman, the fifth finger is bent mesially to a very marked degree at the junction of the middle and distal phalanges. In this exceptional case there is no ankylosis in any of the joints of the index finger of the right hand. Symphalangy is symmetrical in all other members of the family.

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THE CAUSE OF THE RED-GREEN COLOR CHANGE IN EUGLENA RUBRA

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Euglena rubra is one of the species of Euglena in which a color change from green to red may be produced in a few minutes by the migration of pigment granules from central to peripheral positions. The purpose of the present study was to determine the color of light most effective for bringing about this change.

Light sources used were direct sunlight and a 500 watt lamp. The organisms were placed between a glass slide and coverslip, and the color change was observed macrosopically and microscopically.

When the experimental arrangement permitted heating of the slide to occur, the time necessary for the change was an inverse function of energy content as measured with a thermopile, regardless of the color of the light employed. This color change could also be produced by heating to about 40°C. in the dark. However, when heating was minimized by placing the slides on ice, blue light was much more effective than longer wavelengths of the

same energy content. At low temperatures the end point of the color change was also much sharper than when heating of the slide was permitted. The green-red color change, therefore, may be affected by either of two factors: (1) an increase in temperature produced by either heat or radiant energy, or (2) by visible light, especially of the shorter wavelengths, in the absence of appreciable heating.

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